

# A new species of *Grevillea* (Proteaceae: Grevilleoideae) from south-west Western Australia

R.O. Makinson & P.M. Olde

## Abstract

Makinson, R.O.<sup>1</sup> & Olde, P.M.<sup>2</sup> (<sup>1</sup> National Herbarium Of New South Wales, Royal Botanic Gardens, Mrs Macquaries Rd, Sydney, NSW, Australia 2000; <sup>2</sup> Society for Growing Australian Plants, Grevillea Study Group, 138 Fowler Rd, Illawong, NSW, Australia 2234) 1991. A new species of *Grevillea* from south-west Western Australia. *Telopea* (4)2: 351–355. *Grevillea calliantha* R. Makinson & P. Olde, a new species closely allied to *G. hookeriana* Meisn., is described from the Cataby area of Western Australia, c. 140 km NNW of Perth, with notes on affinities and conservation status.

## Introduction

This species was first brought to botanical attention by the Grevillea Study Group of the Society for Growing Australian Plants, who were provided with material by Alec Hooper of 'Zanthorea' [sic] Nursery near Perth, W.A. The material had originally been gathered by Mr N. Foote 'in sandplain north of Perth'. Subsequent searches by Dr S.D. Hopper of the W.A. Wildlife Research Centre have located five small populations. Precise collection localities are omitted from this paper to minimize casual collecting of this endangered species; locality details may be obtained through the Western Australian Department of Conservation and Land Management.

*Grevillea calliantha* R. Makinson & P. Olde, sp. nov.

*Grevillea hookeriana* Meisner affinis, sed pistillis longioribus (28–40 mm longis), inflorescentiis decurvis et fructibus adultis, trichomis biramosis omnino exutis, pilos glanduliferes erectosque solum gerentibus differt.

HOLOTYPE: WESTERN AUSTRALIA: Irwin: ... near Cataby, B.J. Conn 3283 & J.A. Scott, 27 Sep 1989 (NSW 225106).

Spreading flat-topped shrub c. 1 m tall, 2–3 m wide; branches spreading or slightly ascending, somewhat secund on older plants; bark rough, grey over red-brown; branchlets (younger) flattened, strongly ridged, and tomentose with wavy hairs; when older the branchlets more terete, ridged, sublanate with curled hairs; branchlet indumentum whitish with reddish brown stripes corresponding to ridges and decurrent from the leaf-bases. *Leaves* greyish yellow-green, ascending, subsessile (appearing petiolate) or with petioles up to c. 3 mm long, pinnatipartite (almost pinnatisect), 4.0–7.5 cm long with (3–) 5–7 (–11, cultivated) entire ascending linear lobes, lobes 1–4.5 cm long, 1.0–1.1 mm wide, basal lobes longest; apex and apices of lobes acute with a sometimes-pungent point; margin smoothly revolute, enclosing the lower surface except for the midvein(s) of leaf and lobes; upper surface of leaves and lobes with an inconspicuous midvein; young leaves with an open to dense indumentum of wavy to curly hairs on upper surface and the exposed veins of the lower surface, older leaves becoming glabrous and faintly granulate on these parts; texture chartaceous. *Inflorescences* on older plants largely confined to a zone beneath and at the edge of the

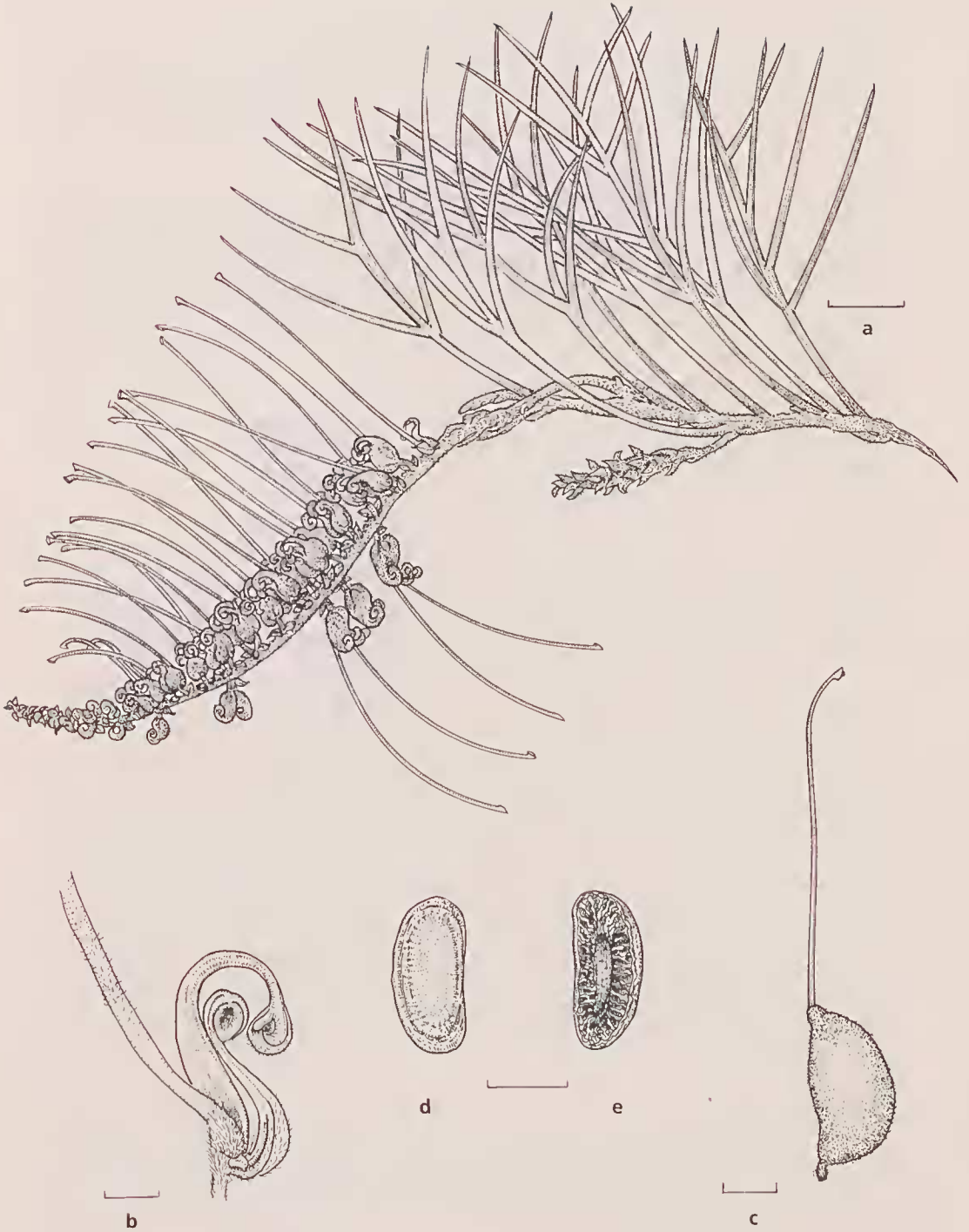
layered foliage, terminal and simple but sometimes on short lateral branchlets arising from successive nodes and appearing branched, decurved to sigmoid from near the base of the peduncle, conspicuous, many (15–30) flowered, secund, centripetal, (?20–) 50–70 mm long; peduncles bracteate, densely tomentose, 5–15 mm long; rachises densely tomentose to sublanate with whitish hairs only, ridged beneath the indumentum, up to c. 60 mm long; bracts spreading (spreading to recurved, and conspicuous, on very young bud-bearing rhachises), ovate-acuminate, 2.2–2.9 mm long, 1.3–1.8 mm wide, outer and inner surfaces tomentose with straight to wavy hairs, bracts persistent at anthesis; pedicels 1.0–2.5 (–3.5, cultivated) mm long, tomentose; torus oblique at 15°–30°, 1.3–2.1 mm across, projecting strongly at the ventral side where it is adnate to the prominent nectary; perianth obliquely ovate to rather saccate below the curve, 2.2–3.0 (–4.0, cultivated) mm across, outer surface tomentose with white and reddish two-armed hairs (and rarely, cultivated NSW 228067, some simple erect multicellular glandular hairs), the indumentum longer (to villous) on the limb; inner surface of perianth glabrous; limb of bud spheroidal, 1.7–2.2 mm long, 2.4 mm wide; dorsal tepals (10.5–) 11.3–12.8 mm long, 1.8–2.6 mm wide; nectary conspicuous, prominent, spreading, linguiform, sometimes decurved at tip, usually partly enclosed within the torus, 0.7–1.9 mm long, projecting 0.3–0.6 (–0.8, cultivated) mm beyond the rim, margin entire; pistil (28.5–) 30–40 mm long; stipe absent or obscure, up to c. 0.5 mm long; ovary subsessile, 1.3–1.6 mm long, subvillous with two-armed hairs only, some reddish blotching evident in the indumentum; ovules attached about the medial position; style appearing glabrous but occasionally with two-armed hairs extending for about 2–3 mm above the ovary, and sometimes with few to many short (c. 0.1 mm) inconspicuous erect multicellular ?glandular hairs, especially on the ventral side, or glabrous throughout; apical c. 2 mm of style dilating smoothly into the back into the style-end; pollen-presenter ovate, oblique at c. 45°, strongly and obliquely convex, 1.1–1.5 mm long, 1.0–1.2 mm wide, 0.3–0.5 mm high, stigma distally off-centre. *Fruits* 2-seeded, more or less spreading from the rachis, erect to somewhat reflexed at the apex of the decurved pedicel, obliquely oblong-ellipsoid, somewhat laterally compressed, 13–18 mm long, 8–9 mm wide, c. 6 mm thick; styles persistent; surface with a dense matted tomentose indumentum of multicellular glandular hairs, sometimes interspersed with a few two-armed hairs (most or all of the two-armed hairs of the ovary shed as the fruit matures); on young fruits up to c. 8 mm long [e.g. *Hopper 6354*] two-armed hairs still predominate, with longitudinal reddish striping of the indumentum; mature fruits with surface beneath the indumentum unevenly pitted; pericarp 0.3–0.4 (–0.7, *Conn 3278*) mm across at the suture, 0.4–0.8 mm thick at centre-face, 0.5–0.8 mm thick at the dorsal side, texture weakly crustaceous. *Seeds* slightly curved, obliquely elliptical, 12.5 mm long, 5.0 mm wide, 2.0–2.5 mm thick; outer face convex, with a slight submarginal ridge, tissue outside the ridge paler than the central elliptical area; inner face with a central more or less flat elliptical area c. 6.0 mm long and 1.0 mm wide, surrounded by an outer ring of radially-oriented upright lamellae of papery or waxy tissue. Figure 1.

The epithet is derived from the Greek *callos*, beauty, and *anthos*, a flower.

**VARIATION:** Minute glandular hairs occur on the style (usually confined to the ventral side in the middle third) in some collections (e.g. *Conn 3278*, NSW 225098); these can be almost undetectable on dry or reconstituted material. In some (cultivated) material (e.g. *Olde*, NSW 228067), these hairs are numerous and form an open indumentum over most of the style. Occasional glandular hairs may also occur in the indumentum of the outer surface of the perianth.

Leaves of some cultivated plants differ from wild-source collections in having up to 11 lobes (as opposed to 3–7).

The collection *Conn 3278* has many digynous flowers interspersed with normal flowers.



**Figure 1.** *Grevillea calliantha*. a, flowering branch, scale bar 10 mm; b, flower, half perianth removed to show ovary and nectary, scale bar 2.5 mm; c, fruit, side view, scale bar 5 mm; d, e, seed, outer and inner faces respectively, scale bar 5 mm. (All from *Conn* 3278).

FLOWER COLOUR: Perianth outside greenish-yellow, ageing to apricot orange; limb often reddish; exposed inner surface of 'throat' region (just below limb) reddish.

DISTRIBUTION AND CONSERVATION STATUS: WESTERN AUSTRALIA: known from five small vulnerable populations in the Cataby area, c. 140 km NNW of Perth. Four of these are of a few plants only, confined to narrow road verges. A larger population of c. 50 plants has been reported (S.D. Hopper, pers. comm.) on private property in the same area.

*G. calliantha* is listed and illustrated in Hopper et al. (1990: 19, and t. 173) as '*G. sp.* (Dandaragan) Hopper 6350, 'Foote's Grevillea''. The species is omitted (perhaps inadvertently) from the appendices of that work which assign conservation priority ratings. The species is not known to occur in any reserve and should receive a 'Priority One' listing according to the criteria given there. In the scheme of Briggs & Leigh (1988) an appropriate grading would be 2E (restricted distribution of < 100 km, endangered); see summary of codes at back of issue.

HABITAT AND ECOLOGY: In remnant heaths on low rises on lower valley slopes in grey to yellow-brown sandy soils over lateritic gravel; associated species include *Eucalyptus todiana*, *Allocasuarina humilis*, *Lambertia multiflora*, *Acacia saligna*, *Calothamnus quadrifidus*, *Gastrobolium spinosum*, *Hakea trifurcata*, *Dianella revoluta*, *Pericalymma sp.*, *Pater-sonia sp.*, *Conospermum sp.*, *Acacia ?pulchella*.

IN CULTIVATION: The species has definite horticultural potential; it is fairly fast-growing with conspicuous and attractive inflorescences. It has been grown successfully in Western Australia, western and north-eastern Victoria, and in central New South Wales; its hardiness in summer-humid situations is still being evaluated. A clone held by 'Zanthorrea' nursery is particularly attractive. Some clones have been sold commercially in recent years as *Grevillea* 'Black Magic'.

AFFINITIES: *G. calliantha* is a member of the group of species defined by Bentham (1870: 419) as Series Hebegynae (type species: *G. pteridifolia*); the group is best characterized by a declined perianth tip, a glabrous inner surface of the perianth, a hairy ovary, and indumentum of late ovary and fruit with light and dark-coloured two-armed hairs arranged to form stripes or blotches (the colour deriving from dark cell contents). The group includes several south-west Australian species around the complex defined by McGillivray (in press) as *G. hookeriana* Meisn. Races 'a' and 'b' (sensu McGillivray) of *G. hookeriana* (no synonyms) are the closest relatives of *G. calliantha*. The two species share the apomorphic characters of large spreading ovate floral bracts, dark purple to blackish style, a spreading linguiform nectary, and seeds with a complex sub-marginal lamellate structure on the inner face. *G. calliantha* differs from *G. hookeriana* in having longer pistils (28–40 mm as opposed to 18–22 mm), decurved inflorescences, and the developing fruits shedding all, or nearly all, two-armed hairs and acquiring a dense indumentum of simple glandular hairs (*G. hookeriana* retains both hair types on the mature fruit).

The presence of scattered glandular hairs on the style is a feature which also occurs sporadically in the *G. hookeriana* complex, in several allied species, and more prolifically in the rather more distantly related group of species around *G. bipinnatifida* R. Br. The closest known occurrence of *G. hookeriana* to Cataby is within 50 km, and an undescribed taxon related to *G. bipinnatifida* (Hopper 6333, PERTH) occurs only 10 km away, at Mt Misery. Either these taxa or others may have been in closer proximity before European settlement.

SELECTED SPECIMENS: WESTERN AUSTRALIA: Irwin: ... Cataby [area], Hopper 6350 et al., 23 May 1988 (PERTH, AD, BRI, CBG, DNA, HO, NSW), 6351, 6352, 6353 (PERTH); ... near Cataby, Conn 3278 & Scott, 27 Sep 1989 (NSW 225098, AD, BRI, CANB, CBG, HO, MEL, PERTH).

### Acknowledgements

Thanks to Felicity Green for the illustration, to Peter G. Wilson for assistance with the Latin diagnosis, and to Jocelyn Powell for comments on the manuscript.

### References

- Bentham, G. (1870) *Flora Australiensis* vol. 5 (L. Reeve: London)
- Hopper, S.D., van Leeuwen, S., Brown, A., & Patrick, S. (1990) *Western Australia's endangered Flora* (Dept of Conservation & Land Management: Wanneroo, W.A.)
- Briggs, J.D. & Leigh, J.H. *Rare or threatened Australian plants*. Australian National Parks & Wildlife Service Special Publication no. 14.
- McGillivray, D.J. *A revision of Grevillea (Proteaceae)* [in press, Melbourne University Press; publication expected 1991].

Manuscript received 8 June 1990

Manuscript accepted 9 January 1991